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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,384	01/09/2004	Hisao Ikeda	740756-2698	6104

22204 7590 04/05/2005

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EXAMINER	
MACCHIAROLO, PETER J	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/753,384	IKEDA, HISAO	
	Examiner	Art Unit	
	Peter J. Macchiarolo	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-11 and 14-20* is/are pending in the application.

4a) Of the above claim(s) *19 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-11 and 14-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *02/24/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The reply filed on 01/18/2005 consists of changes to the specification and to the claims, and further, the reply consists of remarks related to the prior rejection of claims in the previous Office Action. The above have been entered and considered. However, pending claims 9-11, and 14-20 are not allowable as explained below.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 02/24/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Election/Restrictions

3. Newly submitted claims 19 and 20 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the multi-chamber system which is used to form the phthalocyanine and expose the hole injection layer to oxygen gas is independent, distinct, and unobvious from the previously rejected claims.

4. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 19 and 20 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 9-11, and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over previously cited Ogawa.

6. Regarding claims 9, and 10, Ogawa shows in figure 2 and in paragraph [0022], a manufacturing method of a light emitting device comprising an anode (4), a cathode (6), a light emitting layer (5b) disposed between said anode and said cathode, and a hole injection layer (5a) disposed between said anode and said cathode, the method comprising: forming said hole injection layer that comprises copper phthalocyanine, and exposing said hole injection layer to oxygen gas (electron acceptable NO_2) after forming said hole injection layer.

7. Ogawa is silent to the gas being oxygen.

8. However, both O_2 and NO_2 will oxidize copper phthalocyanine, and therefore in accordance with the teachings of Ogawa, both gasses will be able to oxidize and increase the hole injection layer's performance.

9. Furthermore, it would have been obvious to one having ordinary skill in the art that the time the invention was made to use oxygen, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin,* 125 USPQ 416. One would arrive at this

modification for a variety of reasons, including material availability and manufacturing processes with sensitive requirements.

10. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture Ogawa's light emitting device with exposing the hole injection layer to use oxygen instead of NO_2, since both of these gases will increase the hole injection layer's performance.

11. Regarding claim 11, Ogawa is silent to an electron acceptable compound capable of oxidizing phthalocyanine is doped in the hole injection layer.

12. However, Ogawa does teach that an electron acceptable gas, NO_2, has strong oxidizing properties and this gas is directed over the phthalocyanine to increase hole injection efficiency. One would be motivated to dope the phthalocyanine with an electron acceptable compound capable of oxidizing the hole injection layer in addition to exposing the hole injection layer to the oxidizing gas atmosphere to further oxidize the layer, thereby increasing overall hole injection efficiency.

13. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the light emitting device of Ogawa by doping the hole injection layer with an electron acceptable compound capable of oxidizing phthalocyanine to increase the conductivity and hole injection efficiency of the phthalocyanine.

14. Regarding claim 14, Ogawa is silent to the electron acceptable compound being TCNQ-F4 (tetracyanoquinodimethane) or V_2O_5.

15. However, it is known that both of these materials will oxidize phthalocyanine, and therefore, it would have been obvious to one having ordinary skill in the art that the time the invention was made to use TCNQ-F4 or V_2O_5, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin,* 125 USPQ 416. Further, one would be motivated to this configuration for a variety of reasons, including material availability and manufacturing processes with sensitive requirements.

16. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture Ogawa's light emitting device with exposing the hole injection layer to dope phthalocyanine with TCNQ-F4 or V_2O_5.

17. Regarding claims 15 and 16, the rejection, motivation, and reason for combining is the same as for rejected claims 9, 11, and 14 above, since claims 15 and 16 only recite the apparatus which is manufactured from the above discussed method.

18. Regarding claims 17 and 18, the limitations therein have been discussed above at rejected claims 9, 10, 11, and 14.

Response to Arguments

19. Applicant's arguments filed 01/18/2005 have been fully considered but they are not persuasive.

20. First, Applicant alleges Ogawa fails to disclose, teach, or otherwise suggest exposing the hole injection layer to oxygen gas. The Examiner respectfully disagrees and directs Applicant to paragraph [0022] of Ogawa. One of ordinary skill will understand that Ogawa gives as an example NO_2 gas can be used to oxidize CuPc, and infers that any gas capable of oxidizing CuPc may be used (see para. [0022]). One of ordinary skill in the art will be able to select an equivalent oxidizing gas, especially a gas as well known and used for oxidizing purposes as oxygen gas.

21. Second, Applicant alleges in light of Ogawa's teachings, it would not have been obvious to one having ordinary skill in the art to oxidize phthalocyanine by doping using an electron acceptable compound. The Examiner respectfully disagrees. The method of doping a hole injection layer with an electron acceptable compound in order to help oxidize the layer is not novel. The Examiner has stated that this modification is known in the above rejection, and is hereby supplying USPN 6486601 to Sakai et al, which is evidence of this assertion.

22. Third, Applicant alleges the Examiner did not supply motivation as to why one of ordinary skill in the art would use the claimed electron acceptable compounds (TCNQ-F4 and V_2O_5). The Examiner respectfully disagrees and directs Applicant to numbered paragraph 22 in the previous office action, reproduced here for Applicant's convenience, "one would be motivated to this configuration for a variety of reasons, including material availability and manufacturing processes with sensitive requirements," (emphasis added). These were just a few

examples of several possible motivations one skilled in the art would use to arrive at this configuration. To elaborate, if a particular manufacturing plant was charged to manufacture a light emitting device as discussed above, by oxidizing CuPc, and had an abundance of TCNQ-F4 in stock, then the obvious choice would be to dope the TCNQ-F4 in the CuPc.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

24. USPN 6486601 to Sakai is evidence that doping the hole injection layer with TCNQ-F4 is known in the art and would be obvious.

25. **THIS ACTION IS** MADE **FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

26. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (571) 272-2375. The examiner can normally be reached on 8:30 - 5:00, M-F.

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571) 272-2475. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pjm

JOSEPH WILLIAMS
PRIMARY EXAMINER